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ABSTRACT

A study was conducted to examine the relationship between reading achievement levels and writing ability, and to determine the extent to which writing ability in one language transfers to another language. Subjects were 21 high school students in advanced placement Spanish classes, all of whom had learned Spanish in the classroom. The Stanford Diagnostic Reading Test (SDRT) was used to diagnose students' reading levels. The Fry Readability Graph was applied to students' English composition and a Spanish adaptation of the Fry graph was applied to students' Spanish compositions. An approximate grade level for the writing samples was determined for each student, and a comparison was then made between SDRT data and those obtained from the English writing samples to determine the correlations between reading achievement levels and writing ability levels. A comparison of data from the two writing samples was also made to determine the correlation between the writing ability levels of the students in the two languages. The results indicated that, while comprehension and vocabulary levels significantly correlated with writing ability in English and Spanish, the overall writing levels of the subjects--as indicated by the Fry Readability graphs--were significantly lower than overall reading ability--as indicated by the SDRT. The results also indicated a significant correlation between the ability to write in English and the ability to write in Spanish. (Extensive tables of data, as well as the Fry Readability Graph, are included.) (HTH)

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An Assessment of the Reading Achievement of Secondary Students and Its Relationship to the Readability Levels of Student Generated Writing in English and in Spanish

By

Sally A. Hague

A Specialist Study
Submitted to the Graduate School
of the University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Specialist Degree
July 1984

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Chapter 1

Introduction

Problem Statement

This study will use readability formulae and samples of student writing in English and in Spanish to answer the following questions:

1. Is there a significant relationship between the reading achievement levels of secondary students and the readability levels of student authored writing?
2. Is there a significant difference in the readability levels of student generated writing in English, their first language, and in Spanish, their second language?

Rationale

In the December 8, 1975, issue of Newsweek magazine, Dr. Carlos Baker, Chairman of the English Department at Princeton University, stated that learning to write is learning to think and that learning to write is one of the most difficult and important tasks that any child performs. In the same edition, it was reported to the American public that there was a writing crisis in the schools. Evidence cited in the article claimed that the skills possessed by most high school students would not qualify them for clerical work, and that college graduates were unable to write with any degree of structure and lucidity. The article quoted statistics compiled by the National Assessment of Educational Progress (NAEP) that indicated that Americans tend to use only elementary vocabulary and simple sentence structure when composing. Furthermore, data showed that essays written by

secondary students were more awkward, incoherent, and disorganized than those of their counterparts in 1969 (Shiel, 1975).

Further evidence of the declining verbal abilities of America's high school students was brought to light in A Report on Secondary Education in America (Boyer, 1983). Between 1952 and 1982 the average score on the verbal section of the Scholastic Aptitude Test (SAT) fell 50 points, from 476 to 426. The verbal portion of the test measures a student's ability to recognize relationships in pairs of words, to complete sentences, and to interpret and analyze written passages. Also noted in this report is the neglect of writing in the schools. Writing was found to be taught only infrequently and when writing assignments were given the papers were usually returned with only brief comments in the margin.

An analysis of NAEP and SAT data (Blau, 1980) shows that two-thirds to three-fourths of students do attain basic writing skills; that is, they are able to produce ordinary sentences and paragraphs. However, this fact seems to indicate a decline of higher level cognitive skills; it appears that students are able to write more correctly, but less thoughtfully. This reasoning may be used to explain the declining SAT scores as the lower scores are largely attributable to test items that require students to exercise higher rather than basic cognitive processing skills.

Similarly, in 1979, the President's Committee on Foreign Language and International Studies reported that there was a "serious deterioration in America's language and research capacity, at a time when an

increasingly hazardous international military, political and economic environment is making unprecedented demands on America's resources, intellectual capacity and public sensitivity" (Perkins, 1980). The problem stems from the fact that only 15 percent of secondary students study a foreign language and that instruction in foreign languages has virtually disappeared from the elementary curriculum. The Committee urged the reinstatement of foreign language requirements, admonishing that language education should start earlier and last longer if competency is to be achieved.

Most recently, flaws and deficiencies in the school system were depicted in the report of the National Commission on Excellence in Education, A NATION AT RISK. It found that 13 percent of 17-year-olds are functionally illiterate. It claimed that many 17-year-olds do not possess the "higher order" intellectual skills and that 40 percent cannot draw inferences from written material and that only one-fifth can write a persuasive essay. It noted that the average tested achievement of students graduating from college is lower than at any previous time in our history. Indeed, analyst, Paul Copperman noted: "Each generation of Americans has outstripped its parents in education in literacy, and in economic attainment. For the first time in the history of our country the educational skills of one generation will not surpass, will not equal, will not even approach, those of their parents" (A NATION AT RISK, 1983).

Each of the various task forces and commissions has urged the strengthening of curriculum offerings. The Commission on Excellence

in Education described educational offerings as a "smorgasbord" where one can no longer distinguish the "main courses" from the "desserts." All have urged that students be required to study English for four years and that English courses should equip students to comprehend, evaluate, and use what they read and to be able to write well organized, effective papers. A minimum of two years of foreign language study is recommended for the college bound student. Since competency in a foreign language requires four to six years, such study should be begun in elementary school.

Purpose of the Study

The purpose of this study, then, is to assess the status of the writing crisis through the application of readability formulae to samples of student generated writing. If it is true that students employ only limited vocabulary and simple sentence structure, readability levels will indicate written matter on a low grade level. If, however, the students do possess high level cognitive skills, this fact should evidence itself by readability levels indicative of a higher grade level. Also, a comparison will be made between the actual reading level of the students in the sample and the readability level of their written products.

A secondary intent of this research is to determine the extent that writing ability in one language transfers to another language. By using a readability formula that has been adapted to the Spanish language, the readability level of student generated writing in a second language will be determined. In this manner the correlation

between reading achievement levels and the readability levels of student authored prose in English and in Spanish will be described.

Definition of Terms

Readability: Readability is the term that refers to the difficulty level of written material. It is usually used to refer to the process of selecting appropriate texts for a particular reader or group of readers.

Readability Formula: A readability formula is a method, computational or non-computational, that is used to determine the grade level of written material.

Reading Achievement: Reading achievement is a term that refers to the different skills possessed by a particular reader. By use of various tests, reading achievement can be stated in terms of grade level equivalency, percentiles, stanines, raw scores, and scaled scores.

The Fry Readability Graph: The Fry is a readability formula that is computed according to the average number of syllables and the number of sentences in three samples of 100 words. The figures are then used as coordinates on a graph and the point at which they intersect is said to indicate the grade level of the passage in question.

Grade Equivalent Score A grade equivalent score is a derived score which attempts to indicate the grade level at which a particular level of performance is average. A grade equivalent of 5.2, for example, would indicate that the performance was typical of students at the second month of the fifth grade (Hills, 1981).

Stanine: A stanine is a derived score for a test. It has nine levels, with nine being the upper end, five being the mean, and the standard deviation being two. Stanines one and nine extend to infinity (Hills, 1981).

Instructional Group: an instructional group is a system devised by the authors of the Stanford Diagnostic Reading Test (SDRT) to assign students to instructional groups based on an analysis of their stanine profiles and the instructional priority of the measured skills.

Mean: The mean is a measure of central tendency which is obtained by adding a set of scores and dividing by the total number.

Advanced Placement. The Advanced Placement (AP) program is sponsored by the College Boards for high school students. By following a prescribed program of studies and by successfully completing a test administered by the College Board, a high school student may earn college credit for work completed in high school.

Chapter 2

A Review of Related Literature

Secondary Writing Programs

It has been said that he who controls words controls thoughts. If one ever doubted the usefulness of or contemplated the possible obsolescence of writing, that thought alone should be enough to dissuade such fears. According to Frank Smith (1982), writing permits ideas and events to be created and manipulated in ways that would not be possible if language existed only in the spoken form. Writing is a means of expressing oneself, of making sense of the world, and of imposing order upon it.

Ten years ago the crisis in education was reading. The problems caused by illiteracy in our society were the main issues in the politics of education and educational research. In the 1980s illiteracy has come to signify more than the inability to read, and indeed the inability to write is now a primary concern of the education hierarchy. Writing and writing and its relationship to reading have become a principle target of educational research.

In 1974, the Bay Area Writing Project was begun in Berkeley, California. The philosophy behind this program was twofold: to increase the writing skills of the students while improving the methods and abilities of the teachers. Today, what began as a local movement has expanded to a national program known as the National Writing Project. It is now in operation at more than 100 sites in 43 states (Goldberg, 1984).

Just as there is no consensus about what constitutes good writing, there is no agreement about the characteristics of a good writing program. However, by looking at the various programs in operation, one is able to identify common factors that lead to successful outcomes. Donald Graves' research in New Hampshire and Sondra Perl's study in New York (cited in Goldberg, 1984), point out the importance of allowing students to select writing topics and to share their writing with their peers. The concept of revision should be taught as a natural part of the writing process. Teachers at all levels should also be writing as models and they should sponsor the publication of student work as often as possible.

The National Writing Project advocates the continued professional development of teachers which leads not only to improved student writing but also to an improvement in the general quality of teaching. Because writing, as a discipline, is not generally taught in college, most teachers want to do a good job and are eager to learn more about writing methods. In order to do so, the National Writing Project requires that teachers participate in professional activities, such as developing curricula, attending professional meetings, and teaching demonstration lessons (Goldberg, 1984).

In Duval County, Florida, school officials also view the 1980s as the decade when Johnny, and his teachers will improve their writing skills. The Jack Gordon Writing Skills Enhancement Program is fashioned after the Bay Area Writing Project. Based on the philosophy that one learns to write by writing, teachers of language arts as well

as content area teachers are urged to make more writing assignments (Strickland, 1984).

In Florida, Item 317A of the 1981 Legislative Appropriations Act provided $6,000,000 to initiate programs for the enhancement of writing skills for students in grade 10, 11, and 12. In order to qualify for the program, school districts have to meet certain criteria. The daily load of language arts teachers may not exceed 100 students and the number of students in a given class may not exceed 25. In addition, teachers must require each student one written product each week that the class is in session. These criteria are currently being met in Dvual County language arts classes.

Writing in a Second Language

The former chief reader of the Advanced Placement Examination Committee in French said in 1962 that the greatest single weakness of Advanced Placement candidates was their inability to express themselves correctly in written French (Campbell, 1963). This inability to write in a second language, then is not a weakness that has only recently manifested itself.

The acquisition of a second language involves the assimilation of the same four skills required in the learning of the first language --listening, speaking, reading, and writing. However, with the inception and the popularity of the audio-lingual movement in second language instruction in the 1970s, the oral skills have come to be the major focus of attention, with writing having become the least important of the language skills. Kenneth Chastain (1976) laments this trend, citing the

importance of writing as a productive skill and as a means of solidifying a student's grasp of vocabulary and structure. The ability to write leads to a more profound understanding of the mechanics of the second language.

One of the major problems involved in the teaching of writing stems from the fact that many second language teachers tend to view writing as an academic exercise rather than as a means to communicate a message. This is evidenced by the endless number of completion, recombination, and other structured writing exercises found in all second language textbooks. In addition, the teacher is faced with the heterogeneity of student interests, abilities, and needs. Understandably, teacher and student easily become frustrated with the writing process. McKee (1981) points out that teachers expect students to write with the same ease and ability that they display in English, assuming that first language skills automatically transfer to writing in a second language. Similarly, students become anxious when they are unable to convey thoughts or to organize thoughts within the context of the foreign language.

Conversely, a good second language writing program should recognize that writing is communication and should be designed to guide the student from the basic skills to advanced composition. According to Kroll (cited in McKee, 1981), an initial period of finding something to say should be followed by a formal writing down of ideas. The prewriting stage is of major importance to the second language writer, and without it students tend to attempt linguistic maneuvers beyond their capabilities.

The question of errors in second language writing poses an area of concern. Errors should be viewed in a positive rather than in a negative manner and should be recognized as opportunities to strengthen the forms and functions of the foreign language. In a recent study, Smith (1982) analyzed the omission, overgeneralization, and misuse erros in the compositions of 27 students of Spanish at the University of Texas. Smith discovered that even students enrolled in their third year of study had not learned to use the structures of the language well enough to produce near approximation of native production. At all levels, omission, overgeneralization, and misuse errors continuously co-occur. She concluded that a need exists at all levels of language instruction for guided writing techniques that encourage the learner to use problematic structures which are frequently omitted from compositions. Only by attempting to use all structures of the language will the student attain competence.

A contrasting point of view is raised by Cohen (1982) who feels that teacher feedback on student composition errors may not make a difference in the student's learning to write. Teacher feedback is taken to mean comments about the choice of content, the organization of ideas, and the use of language. In the process of giving feedback, the teacher might indicate the type of error, supply a corrected form, or choose not to correct a particular error because it involves a host of other errors. Cohen further suggests that students do not benefit from forced rewrites, often only mechanically supplying the suggested changes. An alternate method of dealing with errors is known as reformulation.

Reformulation is a term that refers to a process whereby a student takes his or her corrected essay to a native speaker of the target language. This person becomes the equivalent of a ghost writer whose duty it is to rewrite the student essay, preserving the original writer's ideas, but making it sound as native like as possible. In this manner the student has the original version and a reconstructed version of the essay. Through comparison analysis, the learner is able to detect particular areas of weakness and to decide on the specific writing skills that need improvement (Cohen, 1982).

The advent of the audio-lingual approach to second language instruction brought into focus the fact that four skills were involved in language learning. This method involves the orderly acquisition of listening, speaking, reading, and writing skills. However, the problems that are arising as a result of this method, are similar to the symptoms of poor readers who come through a reading program that is highly skills oriented. In both cases, it is sometimes forgotten that the ultimate goal of learning is not the mastery of individual skills, but a fusion or blending of these skills to achieve a broader objective, that of communication. The concept of fusion calls for the interplay of sound and symbol. It requires listening to what is said, writing what is heard, saying what is read, and the ability to vary these combinations (Elkins, Lawoda, Morain, 1972).

Readability

While the people who conceived the idea of readability had a clear-cut objective of matching reader to suitable reading material,

the major use of the formulae today appears to have veered off that course. Today, textbook companies have adopted readability as a means of selling their products. In the 22 states that have statewide textbook adoption procedures, publishers are actually under pressure to meet readability formulae and other requirements for short sentences and limited vocabulary. Most publishing houses freely admit the books written two years below the grade level of their intended recipients are the books that sell the most copies. Thus, a nationwide trend has developed with eleventh grade history books being rewritten to a ninth grade level and twelfth grade texts written down to tenth and so on. Teachers and administrators have supported this trend claiming that students are more likely to read books that are easy to read. The long-term effect of reduced readability is bound to affect the long-term development of reading ability. Education Secretary T. H. Bell recently said that textbooks written for "the bottom of the class" are obstructing the drive to raise school standards in America. He urged educators and textbook publishers to join him in a drive to halt the "dumbing down of textbooks" (Florida Times-Union, 1984).

A study in Minnesota found that 75 to 90 percent of the above average readers were assigned textbooks with a readability level below their reading level (cited in Copperman, 1978). Many school systems purchase texts with lower readability in the name of fairness to lower ability students; however, the educational opportunities of all students seems to have been affected in the process.

As early as 1852 readability was being discussed by Herbert Spencer. He explained that a reader brings limited mental power to the task of comprehending writing which is used to understand the words , to determine the relationship among them, and finally to realize the total thought being conveyed. Different variables, such as syntax, semantics, and abstract words affect the final comprehension of the reader (Harris & Jacobson, 1979).

The general acceptance of and popularity of readability formulae is evidenced by the fact that more than thirty different types have been devised by various theorists. Recently, the cloze procedure has also been used as a measure of readability. Most work that has been done in readability research has been done with English language materials.

Research has been carried out with the concept of readability in other languages. In 1958, Kandel and Moles adapted the Flesch Reading Ease Formula for use with French, and in 1960 Douma published a version of it in Dutch (cited in Klare, 1974). Other fomulae have been developed for Hebrew, German, Hindi, Russian, and Chinese. For the Spanish language, several formulae have been developed and others have been adapted.

Because the Fry Readability Graph will be used to describe the findings of this present study, work done by Fry and about Fry will be discussed in more detail than other readability research. Fry first developed his readability graph in Uganda. There, it was used mainly on British materials by African teachers on a UNESCO project who were teaching English as a second language.

In 1968, Fry rewrote his graph for use in the United States and with American grade level designations. These were determined by plotting lots of books deemed sutiable for different grade levels by different publishers. Fry simply looked for clusters and smoothed the curve. The fact that there is less graph space for grades four and five than for grades six and seven was interpreted by Fry as an inaccuracy in data or that fourth and fifth grade materials don't change in difficulty as much as that of sixth and seventh grades. Fry hoped that his graph would provide a faster and simpler formula and that consequently it would become widely used by teachers, librarians, and publishers to determine readability (Fry, 1968).

In 1975 Fry proposed a new readability principle--high motivation demands a low readability level. This concept can be used to explain the case of an adolescent boy who can read an automobile manual but is not able to read history text. Since one learns to read by reading, this theory can also be used to promote the idea that easy reading will increase the desire or motivation to read. Fry, then, suggests a sub-principle: a child's interest level tends to follow chronological age level and is not related to reading level. He claims there is a tendency for bright children to have the reading interests of older children and dull children to have the reading interests of younger children, but such tendencies are greatly modified by chronological age (Fry, 1975).

Responding to a need by college educators to have an objective measurement of material difficulty, Fry (1977) extended his graph

through college years by simple extrapolation. However, norms have not yet been developed on the thirteenth through sixteenth grade material. He cautions that this extension should only be used to determine reading material that is more appropriate for a college senior as opposed to a college sophomore. The difficulty in determining college norms is the wide divergence in academic qualifications of the students.

Fry claimed that scores obtained on his graph were accurate to a grade level (Fry, 1968). A study by Kretscher (1976) used a correction procedure to negate the inflationary effect of a small number of basic two or three syllable words that occur frequently. The Fry formula is used in the same manner, but counts words appearing on a reference list as only one syllable when obtaining the syllable count. The correction procedure showed a definite tendency to bring readability estimates more in line with Dale-Chall and Spache estimates.

However, other researchers speculate that the question of validity may not necessarily be answered by the comparison of one instrument to another, as questions about the validity of the instrument used for comparison may exist. Fitzgerald (1981) feels that researchers should be more concerned with similarity of readability scores of various samples within a particular text. Although Fry recommends three 100 word samples, Fitzgerald's work indicates that three samples may not give consistent readability estimates, and that nine to fifteen samples would be more likely to approach the population mean.

Readability and Reading Achievement

As previously stated, the orignal intent of readability formulae was to provide a method of matching a particular student or group to an appropriate text. By use of a readability formula the approximate grade level of written material can be determined and then matched with students who have a similar reading achievement level. Very few would argue with the premise that a student is unable to learn from a textbook that is too difficult to read. Indeed, this very situation has lead to the rewriting of both secondary and college texts to make them more readable.

A number of studies have been carried out to determine the extent of this mismatch between student reading ability and text readability. Janz (1969) found that the majority of textbooks used in English, social studies, and science classes were too difficult for the students to whom they were assigned, and that the range of the reading levels of textbooks was not in accord with the range of reading abilities of the students in the study.

Bryant (1971) found real differences between the reading levels of 900 students in North Florida and the readability levels of their texts. Greater than one-half of the students were assigned to content textbooks determined to be too difficult. Cox (1971) in a study that compared the readability levels of modern language texts with the reading ability of secondary students using them, found that 1567 out of 2470 students were reading significantly below the readability levels of their language texts.

More recent studies, however, indicate that the trend may have reversed itself. Because textbooks have been written down, there is now evidence to support the claim that textbooks have become too easy for their intended readers. One study shows that in some affluent school districts, children may know as much as 80 percent of the material covered in their textbooks before they open them (cited in "Teacher-incentive plans due aid," 1984).

The problem has also been studied at the college level. Levy and Dixon (1982) conducted a study at Palomar College to measure student reading levels and textbook readability in humanities, science, and vocational education courses. A range of 5.7 grade levels was found to exist among the various disciplines. The highest reading levels were discovered in students from the letters, engineering, and psychology departments while the lowest levels occurred among vocational students. Balser (1976), in a study of textbooks used in West Virginia colleges, concluded that students were able to use their texts on an instructional level.

Readability and Student Writing

Occasionally readability formulae have been used for purposes other than for what they were originally intended. Although their use as an instrument to make reading material more readable has become an accepted practice, some instances of the inverse can also be found. That is, they can be used to increase the level of the writing. In the literature one is able to find certain instances in which they have been used to investigate writing.

A somewhat novel use of the Fry Readability Graph was employed by senior high English teachers Shepherd and Dickerson (1977). In order to motivate their students to write better, they used the Fry Graph to determine the grade level of student authored essays. While they realized that such a technique would not solve any particular writing problem, they did find that it was an effective means of telling students something concrete about the level of their writing. By allowing students to calculate the grade level of their writing, an incentive was provided that challenged them to improve the quality of their papers. Some students were able to increase the readability level of their papers from fourth grade to college level.

A similar, although more scientific study, was done by Lowey (1964). This investigation was designed to analyze children's written compositions by use of the Dale-Chall Readability Formula, to compare the results with the children's reading achievement levels, and to determine the influence of age, intelligence quotient, grade level, and sex upon these relationships. The analysis demonstrated that a readability formula could be applied to children's writing to judge its sophistication. A significant relationship was found to exist between the level of reading achievement and the level of writing with the highest correlation occurring at lower intelligence levels. It was also concluded that an increase in age did not guarantee an increase in writing level.

A study by Lazdowski (1976) investigated the use of samples of students' writing as a means of assessing their reading achievement. Writing samples of 338 students in grades seven through fourteen were

categorized according to readability grade level without regard to the actual grade level of the student. Reading ability of the students ranged from third grade to above fourteenth grade level. The results of the study found a significant positive relationship between reading and writing ability. From the writing samples, it was possible to predict reading ability to within one grade level.

The Thought Unit Sentence (ThUS) approach is another way to determine the relative difficulty of some writing in comparison with other writing. A ThUS is a group of words which can stand alone as a separate thought and be understood by readers if they are able to read the level and style of the thought. A study by Lowe (1979) experimented with ThUS to determine students' ability to read and the readability of different types of writing. The study involved a college student who worked two hours per week with a secondary level student. After obtaining a sample of the high school student's writing, the college student rewrote a sample of his or her own writing in the style and ThUS level of the student's passage. The college students learned that reading and writing involve the reader's background and interests.

Today, there is much emphasis being placed on the readability of written material. Various readability formulae have influenced the writing of such products as army maintenance materials, insurance policies, and income tax booklets. At least five states have produced Plain Language Laws with the intent of simplifying diverse types of consumer contracts. This concept has become so prevalent in our society that Fry (1982) has coined a new term, "writeability," to

define the process of writing, rewriting, or editing to get such materials down to the desired readability level. Fry claims that much of what is commonly called jargon is simply someone using words which are larger than necessary in order to appear pretentious or self-imposing. The result of such linguistic gymnastics is a written product that often is not comprehensible to the general public.

These studies show that the use of readability formulae have strayed somewhat from their intended purpose. The value of any good product, though, it its versatility, flexibility, and ability to meet new demands. Readability formulae exemplify that criteria.

Readability and Spanish

The concept of readability is not a phenomenon that is associated solely with textbooks nor is it unique to English language materials. A formula known as lix, which is an abbreviation of the Swedish word for readability index, läsbarhetsindex, has been used successfully with thousands of books and reading passages in Danish, English, French, German, and Finnish. The formula is simply sentence length plus word length. Sentence length refers to the number of words per sentence and word length is the percentage of words with more than six letters. A study by Björnsson (1981) tested 250 newspapers in 11 languages which yielded lix scores from 47 to 65. According to lix standards, scores in the 40 range are average difficulty, in the 50 range are considered difficult, and in the 60 range signify very difficult. Results of this study showed that English newspapers are in the difficult range, Spanish in the very difficult, with Russian being the most difficult and Swedish being the easiest.

Lix scores may be transformed to grade levels for English reading materials. An investigation by Anderson (1983) determined the lix cut-off points that correspond to different school grade levels. A lix score of 56 yields an equivalent grade level as college while a lix score of below ten would indicate reading material suitable for first grade. Tenth grade reading level is 44 to 47, eleventh grade 48 to 51, and twelfth grade 52 to 53. Validity studies compared lix grade levels to those of Flesch and Fry and the results showed a reasonable correlation between lix and Fry; however, lix grade levels are generally lower than those of Flesch.

As early as 1951 readability work was being carried out on Spanish language materials. Spaulding (1956) developed a "Formula de Lecturabilidad" to predict the difficulty of Spanish reading material. The two components are word usage, as measured by a density calculation, and sentence complexity, as measured by average sentence length. The word usage calculation is based on the relative number of words in the passage not appearing among the most frequently used words in Spanish as indicated by the Buchanan count (Buchanan, 1941). Sentence complexity recognizes that involved complex sentences are longer than short sentences. The formula provides for rating ranging from 20, or exceptionally easy, to 200, or exceptionally difficult. Most general reading material falls between 40 and 140. This formula has been widely used in Latin America and is also recommended by the author as a tool to evaluate the relative reading difficulty of textual materials used in foreign language instruction.

Another instrument has been developed to assess the readability of Spanish prose and materials used to teach Spanish as a second language. The Fry Readability Adaptation for Spanish Evaluation, FRASE, was developed by Vari-Cartier (1981). Because grade level designations are not of primary concern when selecting instructional material for second language learning, the terminology was changed to reflect appropriateness for beginning, intermediate, advanced intermediate, or advanced levels of instruction. Also, the syllable count range on the horizontal axis had to be increased. Validity studies showed that the FRASE graph is equivalent to the other established methods of estimating readability. Correlations between the FRASE graph, teacher subjective judgements, and the Spaulding formula ratings are constant. This is the first formula developed that provides teachers with an easy, convenient, and accurate method to evaluate the readability of Spanish textbooks used on the secondary level. It involves neither word frequency lists nor complex calculations and it yields results that are stated in terms of proficiency levels which are fairly standard in high school and college second language instruction.

To meet the needs of bilingual teachers, who needed a way to determine the readability of Spanish textbooks and juvenile books for primary pupils, another adaptation of the Fry Graph has also been developed. By adjusting the syllable count, readability levels can be determined for materials in Spanish for grades one, two, and three. A study by Gilliam, Peña, and Mountain (1980) found that by subtracting

67 syllables from the syllable count, reading materials could be placed in appropriate grade levels. The number 67 was arrived at after syllable counts had been completed on 22 Spanish books and this number produced the closest equivalence between Spanish and English for the same materials. Of nine Spanish recreational readers tested, eight fell at the same readability level as their English language versions. Eighteen of 20 textbooks fell within the appropriate grade level bands.

Another, earlier study by Garcia (1977) also determined that the Fry Readability Graph could be adapted successfully to the Spanish language. The author confirmed that in Spanish, as in English, longer words are more difficult than shorter words, and longer sentences are more difficult than shorter sentences. The results of his study show that Spanish has an average of 47 more syllables per 100 words than does English, and an average of 1.6 more words per sentence than English. Garcia used these figures to change the vertical and horizontal axes of the Fry Radability Graph. While the horizontal axis of the Fry starts at 108 and ends at 172, the Spanish Adapted Graph begins at 155 and continues through 219. On the vertical level, Fry ranges from 3.6 to 25, while the Spanish version is 5.2 to 27.6. Garcia stressed, as did Fry, that the grade levels suggested by the graph are approximate. A copy of Garcia's graph appears at the end of his dissertation.

Summary

A review of the literature indicates that, while the writing skills of secondary students are deficient, certain measures have been taken

to improve and to enhance them. The National Writing Project advocates the strengthening of writing skills of both teachers and students. The problem of adequate writing ability also exists in second language learning. The ability to express oneself in one's native language does not necessarily transfer to another.

Readability was originally conceived as a means of matching a reader with appropriate text. However, it now appears that the use of such formulae has come to be equated with the writing down of reading material to make writing easier to understand. Some research has been done that uses readability formulae to study student writing. They have at times been used as a tool to motivate students to improve their writing.

Readability is a concept that has also been tried in languages other than English. In Spanish, Spaulding first developed a readability formula in 1956. Since then, other formulae have been devised and adapted. The most extensive work appears to have been done by Garcia, who adapted the Fry Readability Graph to the Spanish language.

This study, then, will use the concept of readability to determine the writing ability of students in terms of grade level in English and in Spanish. A comparison will be drawn between the writing ability and the reading ability of students as well.

Chapter 3

Procedures

The evidence cited in the review of the literature indicated that readability formulae have been used in a variety of ways; and that they, in fact, have been used as a source of motivation for students wishing to improve their writing. It was also stated that a positive relationship exists between a student's reading and writing abilities. However, it was also pointed out that a student's ability to write in English does not necessarily transfer to another language. The problem investigated in this study, then, was to compare the similarity of students' reading and writing abilities and to also determine the extent of transfer of writing ability to a second language, Spanish.

Setting of the Study

This study was conducted with students enrolled in Advanced Placement Spanish Language at Edward H. White Senior High School in Jacksonville, Florida. White is the largest of Duval County's public schools. Being close to Cecil Field Naval Air Station, it serves a large number of students who are with military families. It is unique among Duval Dounty high schools because it uses modular scheduling. Students enjoy certain advantages such as the flexibility of class time, the availability of individualized attention during unstructured time, and the opportunity to accept individual responsibility for academic decisions. Currently, Duval County is emphasizing the enlargement of its advanced placement curriculum; over 50 percent of the county's Advanced Placement Spanish Language students attend Edward White High School.

Description of the Subjects

The students who participated in the study included one sophomore, three juniors, and seventeen seniors. All were enrolled in Advanced Placement Spanish Language, or Spanish 4. This fact indicates that each one began the study of Spanish while in junior high school. The students had varying characteristics including the following: Several were members of a select group known as Potential National Merit Finalists; some were of Asian background; several were black; some were enrolled in as many as five advanced classes; and one was legally blind. All of the students had learned Spanish exclusively in the classroom setting, although several had been exposed to different languages in the home environment, especially Tagalog (Philippines). Because they are enrolled in advanced classes, the subjects could be described as above average and highly involved in curricular as well as extracurricular activities.

Selection of Subjects

Because several years of foreign language study are necessary before any amount of proficiency in writing can be expected, it was decided to use only students enrolled in Advanced Placement Spanish Language for this study. The students had been required to complete one written composition per week in the Spanish class; also, the students had been required to complete one written composition per week in the English class, as required by the Jack Gordon Writing Skills Enhancement Program. The sample, then, was an example of a cluster type sample in that they were selected for this study because of their enrollment in the Advanced Placement Spanish class.

Instrumentation

Instruments used for this study were the Stanford Diagnostic Reading Test, Blue Level, Form B, (Karlson, Madden, Gardner, 1977); The Fry Readability Graph; and The Fry Readability Graph Adapted for Spanish.

The primary purpose of the SDRT is to diagnose students' strengths and weaknesses in reading. The Blue Level was developed in 1976 and was designed to identify the reading characterisitcs of students in grades nine through twelve. It measures phonetic and structural analysis, reading vocabulary, literal and inferential comprehension, reading rate, and scanning and skimming. Test results may be analyzed in the forms of raw scores, percentile ranks, stanines, grade equivalents, and scaled scores.

The Fry Readability Graph was first developed by Edward Fry in 1961. Its use calls for the random selection of three passages of 100 words, the counting of the number of sentences contained in the 100 words, and the counting of the total number of syllables in the 100 word passage. The average sentence length and the average number of syllables is then plotted on a graph. The area where the dot is plotted indicates the approximate grade level of the written product.

The Spanish Adaption of the Fry Readability Graph was the subject of a dissertation by Garcia in 1977. It operates on the same principle as the original, except that Garcia changed the axes numbers to reflect the average number of syllables per 100 words and the average number of sentences per 100 words in Spanish prose.

Data Collection

The SDRT was administered to each student enrolled in Advanced Placement Spanish Language at Edward H. White Senior High School. Due to the length of the test, the testing sessions were administered over three time periods.

As part of the Advanced Placement curriculum, the students had been required to complete one composition per week in Spanish. These were kept on file for each student. For this study, three samples were randomly selected from each student's folder. If the passage selected happened to contain fewer than 100 words, another one was randomly chosen in its place.

Each student was enrolled in a language arts class and as a result had been required to turn in one written product per week according to the guidelines of The Jack Gordon Writing Skills Enhancement Program. With permission of each student's language arts teacher, the respective writing folder was pulled and from it three samples of the student's writing in English were randomly selected. Photocopies were made of the English writing samples so that the folders could be returned immediately to the language arts teachers.

Data Analysis

The SDRT was hand scored and the results of each subtest were summarized on the Instructional Placement Report. Raw score, stanine, and grade equivalent scores for each student were reported.

The students' writing samples in English were analyzed according to the number of syllables and sentences per 100 words and the average

score was plotted on the Fry Readability Graph. From this information, an approximate grade level of the writing samples was determined for each student.

The student's writing samples in Spanish were analyzed according to the number of syllables and sentences per 100 words and the average score was plotted on the Fry Readability Graph Adapted for Spanish. From this information, an approximate grade level of the writing samples was determined for each student.

A comparison was then made between the SDRT data and the data obtained from the English writing samples in order to determine the correlation between reading achievement levels and writing ability levels. Similarly, the data from the English writing samples and the Spanish writing samples were used to determine the correlation between the writing ability levels of the students in the two languages.

Chapter 4

Analysis of the Data

The purpose of this study was to examine the relationship between the reading achievement levels and the writing abilities of secondary students, and to determine the extent of transfer of writing ability from the native language to a second language. The Stanford Diagnostic Reading Test was administered to each student in order to assess reading strengths and weaknesses. Writing samples were analyzed according to the guidelines of the Fry Readability Graph and the Fry Readability Graph Adapted for Spanish. From this process it was possible to determine the approximate readability grade level of the written prose of each student. The results of the various tests are summarized in Table 1.

Results

The data obtained from the study were analyzed in three different manners: correlations among the stanine scores of the SDRT subtests and the grade equivalents of the English and Spanish writing samples; *t*-tests comparing the mean grade equivalents of the SDRT subtest scores and the mean grade equivalents of the English and Spanish writing samples; and, a description of the ranges of the grade equivalent scores of the SDRT subtest scores and the English and Spanish writing samples, and a description of the stanine ranges.

An analysis of the data in Table 2 indicates a positive correlation between certain areas of reading achievement and the

Table 1

Profile of Individual Subject's Actual Grade Level, Stanford Diagnostic Reading Test Scores, English Writing Sample Readability Level and Spanish Writing Sample Readability Level

Subject	AGL	Comprehension		Vocabulary		Decoding		Rate		ES	SS
		GE	S	GE	S	GE	S	GE	S		
1	12	G	8	G	8	G	8	12	5	7	5
2	10	G	8	G	9	-	-	-	-	7	5
3	11	G	8	G	9	G	9	11.1	5	9	8
4	12	G	7	G	7	G	9	G	6	6	4
5	12	G	8	G	9	-	-	-	-	11	9
6	12	G	6	G	8	G	7	12	5	7	6
7	12	G	9	G	9	G	7	G	7	8	6
8	12	G	5	G	8	-	-	-	-	7	5
9	12	G	8	G	9	G	9	12.5	6	7	5
10	12	G	7	G	8	G	9	G	7	7	4
11	11	G	9	G	9	G	9	12.5	6	10	8
12	12	11.7	5	G	7	G	7	10.5	5	10	6
13	12	11.7	5	G	6	9.4	4	10.8	5	9	6
14	12	G	8	G	9	G	8	11.5	5	10	7
15	12	-	-	G	9	G	8	G	7	5	6
16	12	G	6	G	7	G	6	7.5	3	9	6
17	12	10.1	4	12.9	5	G	6	10.2	4	4	0
18	12	10.9	5	12.2	5	G	7	8.8	4	6	7
19	12	-	-	G	6	11.9	5	10.8	5	6	5
20	12	3.7	1	G	6	G	6	2.1	1	7	7
21	11	9.2	4	G	7	G	6	10.5	5	6	6

Note: Explanation of abbreviations

AGL - Actual Grade Level
GE - Grade Equivalent
S - Stanine
ES - English Sample
SS - Spanish Sample

Table 2

Correlations Between Stanford Diagnostic Reading Test Stanine Scores and Grade Equivalents of Writing Samples

Variable	English Sample	Spanish Sample
Comprehension	.45*	.42*
Vocabulary	.43*	.41*
Decoding	.12	.14
Rate	-.01	-.08

Note: *p $<$ .05

readability level of student generated writing. Readability levels of student generated writing in English and the comprehension scores of the SDRT show a significant relationship (r = .45). Also, the readability levels of student generated writing in English and the vocabulary scores of the SDRT show a significant relationship (r = .43). Similar correlations exist between student generated writing in Spanish and comprehension (r = .42) and writing in Spanish and vocabulary (r = .41). The data in Table 2 also indicates that decoding and rate scores of the SDRT are not significantly related to the readability grade levels of either the Spanish or English writing samples.

As indicated by the t-test scores in Table 3, the mean grade equivalents on each of the SDRT subtest are significantly higher ($p < .001$) than the mean grade equivalents of the English and Spanish writing samples.

The information contained in Table 4 shows that the average readability grade level of student writing in English in 7.52. A review of Table 5 indicates that the average comprehension score is grade 11.91; Table 6 shows that the average vocabulary score is grade 12.96. Table 7 indicates that the average decoding score is grade 12.74; and Table 8 shows that the average rate score is grade 10.82.

This means that a grade level difference of 3.28 years exists between the English writing level and the lowest reading level subtest score, rate; while a difference of 5.38 years exists between

Table 3

Grade Equivalent Comparisons

	N	Mean	s	t	p
Decoding	18	12.74	.87	10.75	<.001
ES		7.39	1.79		
Vocabulary	21	12.96	.18	13.84	<.001
ES		7.52	1.83		
Comprehension	19	11.91	2.29	7.51	<.001
ES		7.73	1.79		
Rate	18	10.82	2.65	4.55	<.001
ES		7.39	1.79		
Decoding	18	12.74	.87	14.80	<.001
SS		5.67	1.81		
Vocabulary	21	12.96	.18	17.72	<.001
SS		5.76	1.84		
Comprehension	19	11.91	2.29	8.99	<.001
SS		5.79	1.93		
Rate	18	10.82	2.65	6.32	<.001
SS		5.67	1.81		

Note: Explanation of Abbreviations

ES - English Sample

SS - Spanish Sample

Table 4

Frequency Distribution of Grade Level Equivalents of English Writing Samples

Grade	Frequency	Percentage
G	0	-
12	0	-
11	1	5.0
10	3	14.0
9	3	14.0
8	1	5.0
7	7	33.0
6	4	19.0
5	1	5.0
4	1	5.0
3	0	-
2	0	-
1	0	-

Note: Mean grade level = 7.52

N = 21

Table 5

Frequency Distribution of Grade Level Equivalents of Literal and Inferential Reading Comprehension

Grade	Frequency	Percentage
G	13	68.42
12	0	-
11.7	2	10.52
10.9	1	5.26
10.1	1	5.26
9.2	1	5.26
8	0	-
7	0	-
6	0	-
5	0	-
4	0	-
3.7	1	5.26
2	0	-
1	0	-

Note: Mean grade level = 11.91

N = 19

Table 6

Frequency Distribution of Grade Level Equivalents of Vocabulary

Grade	Frequency	Percentage
G	19	90.47
12.9	1	4.76
12.2	1	4.76
11	0	-
10	0	-
9	0	-
8	0	-
7	0	-
6	0	-
5	0	-
4	0	-
3	0	-
2	0	-
1	0	-

Note: Mean grade level = 12.96

N = 21

Table 7

Frequency Distribution of Grade Level Equivalents of Decoding

Grade	Frequency	Percentage
G	16	88.88
12	0	-
11.9	1	5.55
10	0	-
9.4	1	5.55
8	0	-
7	0	-
6	0	-
5	0	-
4	0	-
3	0	-
2	0	-
1	0	-

Note: Mean grade level = 12.74

N = 18

Table 8

Frequency Distribution of Grade Level Equivalents of Rate

Grade	Frequency	Percentage
G	4	22.22
12.5	2	11.11
12	2	11.11
11	2	11.11
10	5	27.77
9	0	-
8	1	5.55
7	1	5.55
6	0	-
5	0	-
4	0	-
3	0	-
2	1	5.55
1	0	-

Note: Mean grade level = 10.82

N = 18

the writing level and the highest reading level subtest score, vocabulary. This is a range of 2.1 years between the English writing scores and highest and lowest subtest scores. While there is a significant difference between reading grade level and writing grade level, there is not a great difference between reading achievement and actual grade level placement of the students. It appears that the students' strengths lie in vocabulary and decoding and that their greatest weakness is in the rate of reading. Comprehension skills are slightly below grade level placement.

An analysis of the stanines of the SDRT scores brings similar findings. In the reading comprehension, 52 percent of the students are above average, 42 percent are average, and 5 percent are below average. In vocabulary, 76 percent are above average and 24 percent are shown as average. In decoding, 66 percent are above average and 33 percent are average. Again, the area of greatest weakness is in rate with only 17 percent of the subjects above average, 72 percent average, and 11 percent below average.

An analysis of the data obtained through application of the Fry Readability Graph to samples of student writing in English and application of the Fry Readability Graph Adapted for Spanish to samples of student writing in Spanish shows a significant correlation ($\underline{r}$ = .71) of abilities. However, a significant difference of 1.8 grade levels was found between the two means ($\underline{t}(20) = 5.72$, $p < .001$). See Tables 4 and 9.

Table 9

Frequency Distribution of Grade Level Equivalents of Spanish Writing Samples

Grade	Frequency	Percentage
G	0	-
12	0	-
11	0	-
10	0	-
9	1	5.0
8	2	10.0
7	3	14.0
6	7	33.0
5	5	23.0
4	2	10.0
3	0	-
2	0	-
1	0	-
0	1	5.0

Note: Mean grade level = 5.7

N = 21

Summary

In summary, the results of this study indicated that, while comprehension and vocabulary levels significantly correlate with writing ability in English and Spanish, the overall writing levels of the subjects, as indicated by the Fry Readability Graphs were significantly lower than overall reading ability, as indicated by the SDRT. The study also found that there is a significant correlation between the ability to write in English and the ability to write in Spanish. However, it appears that the readability levels of students' writing in both English and Spanish is considerably lower than reading achievement levels in terms of grade level equivalents.

Chapter 5

Summary, Conclusions, Recommendations

Summary

The purpose of this study was to examine the relationship between the reading achievement and the writing ability of secondary students, and to determine the extent to which transfer occurs between writing abilities in the first language and the second language. The Stanford Diagnostic Reading Test was used to analyze the students' strengths and weaknesses, and the Fry Readability Graph and the Fry Readability Graph Adapted for Spanish were used to determine the readability of student generated writing in terms of grade level.

The subjects in the study were all students at Edward H. White High School who were enrolled in the Advanced Placement Spanish Language class. The students had been required to produce one writing sample per week in their respective language arts class as well as in their Spanish class. It was from these files that writing samples were obtained.

Conclusions

From an analysis of the data four conclusions may be made concerning the relationship of the readability levels of student generated writing in English and Spanish to reading achievement:

1. A significant relationship exists between reading achievement and writing ability. In particular, comprehension

and vocabulary have been shown to be indicators of how well a student may write in English or Spanish.

2. Writing skills, in terms of grade level as determined through application of readability formulae, are significantly lower than both reading achievement levels and actual grade level placement.
3. A significant relationship exists between writing ability in English and Spanish. Students who write well in English also write well in Spanish.
4. Writing skills in Spanish, in terms of grade level as determined through application of readability formulae, lag approximately two years behind writing skills in English.

Discussion

This study has shown that a significant correlation exists between the reading achievement scores of secondary students and the approximate grade level of their writing abilities. Comprehension and vocabulary scores appear to indicate how well or how poorly a student may write in English or in Spanish. This study also produced evidence that the writing skills possessed by advanced secondary students are significantly lower than both grade level placement and reading grade levels. While it is realized that readability measures focus mainly on the surface structure of language and do not take into account deep structure characteristics such as style, content, organization, prior knowledge, and motivation of the writer, there does appear to be a noticeable inability of students to

write complex and compound sentences and to use a high percentage of words in their writing that contain more than five syllables. It appears that a writing crisis does indeed exist, at least in terms of grade level of student writing.

The writing samples used in the English portion of the study contained a wide range of subject matter. The topics varied from literary analyses to creative writing projects. In short, there were writing assignments that, while still falling into the category of required work, should have appealed to the teenage creative genius. This researcher noted that the papers had been holistically graded; that is, the teacher had made comments as to style and content, but there was very little to no attempt to correct glaring grammatical errors. It is based on these observations that the following conclusion is made about writing. Secondary students, enrolled in advanced language arts classes, turn in writing assignments that contain an excess of grammatical errors, display a notable lack of style and organization, and give one serious reason to question their general language experience background.

On the other hand, the recent trend toward increased instruction in reading in the schools seems to be improving the skills of the students. While the subjects in the sample are advanced, and therefore would not be expected to display serious reading problems, it is still significant to note that they are comprehending near grade level, and that they do possess vocabulary and decoding skills in many cases at the high school graduate level. The most serious

deficiency demonstrated was in rate of reading and this could be considered somewhat curious. It would seem that advanced students would have more fully developed their skimming and scanning capabilities in order to maintain their advanced status in the classroom.

The data obtained from the analysis of the Spanish writing samples indicates that there is a significant correlation between writing ability in one language and that of another, or second language. The Spanish mean grade level of 5.7 was closer to the English mean grade level of 7.5 than had been expected. Although the students have only studied Spanish for four years, the data seem to imply that they attempt to and are capable of thinking on a similar level in both languages. Therefore, once can conclude that students who write well in English will also write well in Spanish.

The samples used in the Spanish sample contain both original and rewritten versions. During the first semester the students had been required to rewrite their compositions, hopefully employing the suggestions for improvement that had been indicated by the teacher. Therefore, when the papers were randomly selected, both types were among the chosen copies. It should be stressed that the Spanish writing samples also contained errors and in some cases, glaring examples of anglicisms. A major weakness is vocabulary and the resulting reliance on a dictionary when composing. This often causes novice language learners to select a word that does not suit the context of a particular situation. On the positive side, it was observed that the students attempted to use a variety of verb tenses and grammatical

structures in their compositions. Again, these problems, and their presence in writing is not evidenced through readability formulae.

Recommendations and Implications

This descriptive study indicates that there is a positive correlation between writing skills in English and Spanish of secondary students. Further study and the use of other instruments should be carried out to further support or reject this claim. If such study were to support the evidence gathered here, in the future, analyses of English writing samples of students might be used as predictors of success or failure in a second language class.

Although the subjects in this study were members of an Advanced Placement Spanish class, they had not yet taken the College Board AP Test in Spanish Language. A follow-up study should be conducted after the results of the test are known to determine the correlation between writing readability level and success or failure on the written composition portion of the examination. In this way, readability formulae could be used to predict the outcome of such a test. It is also possible that the constant use of readability to analyze writing samples prior to such testing could be used as a tool to improve writing composition techniques and thus increase the possibility of success on this test or other achievement tests involving writing.

Furthermore, this researcher feels that the application of readability formulae to student writing in their first language could be channeled into a source of motivation to improve writing skills. If students were able to see concrete evidence of low writing ability,

they would also be able to consciously increase the number of syllables and to reduce the number of short sentences in their writing. The concept of revision and the process of rewriting should be stressed more in the classroom. This, in combination with analysis of readability formulae, could enhance the final written product of a student.

Further research comparing the readability of student textbooks and the readability of student writing might also prove to be significant. This researcher wonders what effect, if any, the writing down of texts has had on the writing skills of the students who read them.

Finally, there remains the question of why there exists such a large range in the reading grade levels and the writing ability of the students. If students are able to read difficult material, why are they not able to reproduce similar writing from their own thought processes?

This study has merely touched the surface of what is a very interesting topic of research. It appears that now, with the current renaissance in the teaching of writing that is taking place all around the country, is a very appropriate time for more research in this area.

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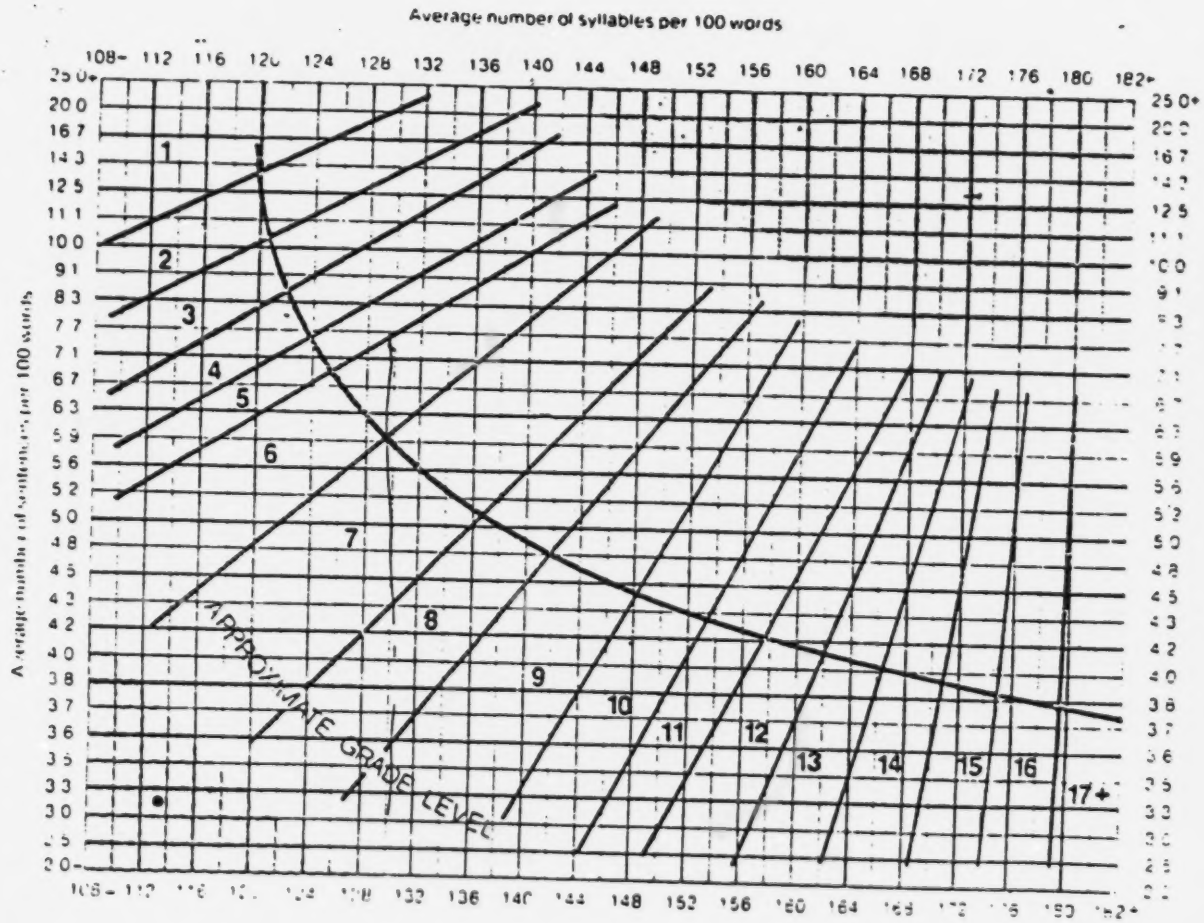
Appendix

Fry Readability Graph



BEST COPY AVAILABLE

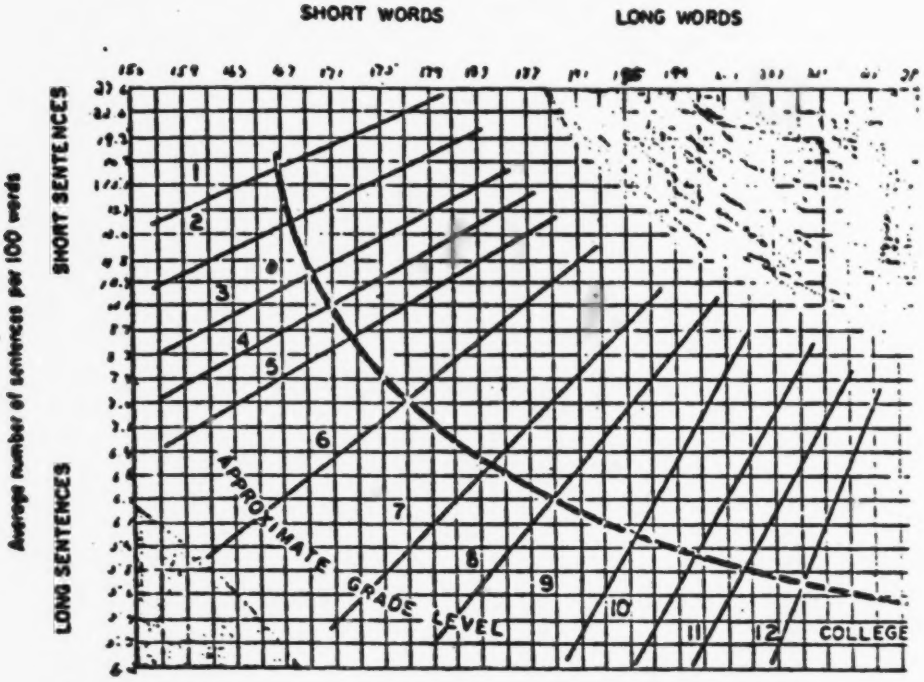
FIGURE 3

55

GRAPH FOR ESTIMATING READABILITY*

by Edward Fry, Rutgers University Reading Center, New Jersey

*ADAPTED for SPANISH



Book Plotted: Aventuras maravillosas (Libro II, Nivel II) (see Appendix B)

DIRECTIONS: Randomly select 3 one hundred word passages from a book or an article. Plot average number of syllables and average number of sentences per 100 words on graph to determine the grade level of the material. Choose more passages per book if great variability is observed and conclude that the book has uneven readability. Few books will fall in gray area but when they do grade level scores are invalid.

EXAMPLE:

	SYLLABLES	SENTENCES
1st Hundred Words	165	12.6
2nd Hundred Words	163	10.7
3rd Hundred Words	170	11
AVERAGE	166	11.4

READABILITY 3rd GRADE (see dot plotted on graph)

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